

**REMARKS**

Applicants respectfully request reconsideration and further examination of the present application.

**I. Amendments to the Claims**

Prior to this Amendment B, claims 52-63 were pending, all other claims having been canceled by Applicants' Preliminary Amendment A and Response to Restriction Requirement dated January 16, 2004. With this Amendment B, claims 52 and 54 have been amended, while claims 73-90 have been added. Accordingly, claims 52-63 and 73-90 are now pending.

Claim 52 has been amended for purposes of clarification. Specifically, the claim has been amended to indicate that the concentration of agglomerated vacancy defects present in the vacancy-dominated region is greater than  $10^3$  defects/cm<sup>3</sup>. Support for this amendment may be found in the specification, for example, on: page 33, lines 10-20 (wherein it is indicated that the vacancy-dominated region may or may not be substantially free of agglomerated vacancy defects); and, page 50, line 21 to page 51, line 14 (wherein the phrases "agglomerated intrinsic point defects," "agglomerated vacancy defects" and "substantially free of agglomerated intrinsic point defects" are defined). Applicants respectfully submit this amendment is simply a clarification because, by definition herein, if the vacancy-dominated region is not substantially free of agglomerated vacancy defects, then it must have *detectable* agglomerated vacancy defects. According to the present application, the detection limit of such defects is said to be about  $10^3$  defects/cm<sup>3</sup>. *Detectable* agglomerated defects must therefore be present in excess of this concentration.

Claim 54 has also been amended for purposes of clarification, the claim now referencing the *diameter* of the wafer, rather than the radius. Support for this amendment may be found in the specification, for example, on page 21, lines 2-17.

Support for new claims 73-90 may be found in the specification as follows:

- claims 73, 74, 77, 78, 85 and 86: page 14, lines 18-24;
- claims 75 and 83: page 21, lines 2-17;
- claim 76: original claim 53;
- claims 79, 80, 87 and 88: original claims 57 and 58;
- claims 81 and 89: original claim 60; and,
- claim 82 and 90: original claim 62.

## **II. Allowable Subject Matter**

Applicants respectfully acknowledge the Office's finding that claim 58 would be allowable if rewritten in independent form, including all of the limitations of the base claim and any intervening claims (paragraph 4, page 4 of the present Office action).

## **III. Rejections under 35 U.S.C. §102(b) or §103**

Reconsideration is respectfully requested of the rejection of claims 52-57 and 59-63 under 35 U.S.C. §102(b) as being anticipated by, or in the alternative under 35 U.S.C. §103 as being obvious in view of, Falster et al. (WO 98/45508).<sup>1</sup>

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<sup>1</sup> In view of the Office's finding in paragraph 4 of the present Office action, Applicants understand this rejection to be directed to claims 52-57 and 59-63, rather than 52-56 and 58-61 (claim 58 being the only claim identified as allowable in the present action).

Additionally, Applicants respectfully point out that the cited PCT application corresponds to U.S. Patent No. 5,919,302.

Claim 52 is directed to a single crystal silicon wafer which comprises, in relevant part:

an interstitial-dominated, axially symmetric region  
extending radially inward from the circumferential edge  
which is substantially free of A type agglomerated interstitial  
defects; and,

a vacancy-dominated, axially symmetric region  
extending radially inward from the interstitial-dominated  
region and containing agglomerated vacancy defects,  
wherein the concentration of agglomerated vacancy defects  
is greater than  $10^3$  defects/cm<sup>3</sup>, and further wherein, upon  
being subjected to an oxidation treatment, an oxidation  
induced stacking fault concentration is less than about  
50/cm<sup>2</sup>.

Accordingly, in as much as the present application indicates that the detection limit of agglomerated vacancy defects is currently about  $10^3$  defects/cm<sup>3</sup>, claim 52 has been amended to clarify that the claimed wafer has a vacancy-dominated, axially symmetric region which contains detectable agglomerated vacancy defects therein, and therefore has a concentration of such defects in excess of this amount.<sup>2</sup>

In contrast to the wafer of claim 52, Falster et al. disclose a wafer having a vacancy-dominated, axially symmetric region which is substantially free of agglomerated vacancy defects; that is, Falster et al. disclose a wafer having a vacancy-dominated region which has no detectable agglomerated vacancy defects therein.<sup>3</sup> Accordingly, in this regard and consistent with their definition of "substantially free of agglomerate vacancy defects," Falster et al. disclose a wafer which is the opposite of

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<sup>2</sup> See, e.g., page 50, line 21 to page 51, line 14 of the present specification (wherein "agglomerated intrinsic point defects," "agglomerated vacancy defects" and "substantially free of agglomerated intrinsic point defects" are defined).

<sup>3</sup> See, e.g., page 1, lines 4-11, page 5, lines 23-28, page 6, lines 1-12, and page 30, lines 6-27 of the cited referenced.

the wafer of claim 52. In view of this, and furthermore given that the focus of Falster et al. is clearly on preventing the formation of agglomerated vacancy defects, Applicants respectfully submit they actually teach away from the wafer of claim 52.

Accordingly, Applicants respectfully submit Falster et al. fail to disclose or suggest a wafer having each and every element as set forth in claim 52. Applicants therefore respectfully submit the wafer of claim 52 is novel over Falster et al.

Applicants further submit the Office has failed to establish a *prima facie* case of obviousness not only because Falster et al. fail to disclose or suggest each and every element as set forth in claim 52, but also because there is simply no suggestion or motivation, either in this reference or in the knowledge generally available to one of ordinary skill in the art, to modify this reference as suggested by the Office.<sup>4</sup> More specifically, as previously noted, Falster et al. *teach away* from the wafer of claim 52, in as much as they disclose a wafer, as well as process for the preparation thereof, which has a vacancy-dominated region that contains no detectable agglomerated vacancy defects.

Accordingly, Applicants respectfully submit the wafer of claim 52 is also not obvious in view of the teachings of Falster et al.

Inasmuch as claims 53-57, 59-63 and 73-90 depend from claim 52, these claims are submitted as novel over, and nonobvious in view of, the cited reference for at least the same reasons as those set forth with respect to claim 52. Although one or more of these claims include additional novel and/or nonobvious features, these features will not be addressed at this time in the interests of brevity.

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<sup>4</sup> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference. Second, there must be a reasonable expectation of success. And third, the prior art reference must teach or suggest all the claim requirements. MPEP §2142.

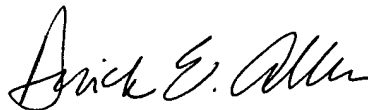
**CONCLUSION**

In view of the foregoing, favorable reconsideration and allowance of all pending claims are respectfully requested.

Applicants request an extension of time to and including July 16, 2004 for filing a response to the above-mentioned Office action.

A check in the amount of \$110.00 in payment of the applicable extension fee is enclosed. The Commissioner is, however, hereby authorized to charge any underpayment or credit any overpayment to Deposit Account No. 19-1345.

Respectfully submitted,



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\*Enclosure